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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Contract has been signed by USAEC with Martin Co., Baltimore, for fabrication and testing of reactor fuel elements. Oak Ridge will furnish Martin with approximately 65-kg of uranium hexafluoride, to be processed into approximately 50-kg of uranium dioxide. Martin's nuclear division is nearing completion of facilities for fabricating this fuel into tubular stainless steel fuel elements; similar elements will be used in Martin's power reactor, a 1000-2000 kw air transportable, packaged power plant particularly suited to military or other remote locations. (Other CONTRACTS LET, BIDS ASKED, p. 2 this LETTER.)

Trading in Faraday Uranium Mines started last week (Mar. 11th) on American Stock Exchange; firm is most recent of Canadian uranium mining firms (Northspan, etc.) to secure such listing. Faraday, which holds contract from Eldorado Mining & Refining to furnish that Governmental buying agency $29 million in uranium concentrates, has mill scheduled for startup this April with about 2.5 million tons of ore now stockpiled. (Other FINANCIAL NEWS, p. 5 this LETTER.)

Last week's 1957 Nuclear Congress, held in Philadelphia, and sponsored by some 24 technical organizations, covered a program of over 150 technical papers. (For papers write Engineers Joint Council, 29 W. 39 St., NYC) Included in the Congress was the 2nd Nuclear Engineering & Science Conference; 5th Atomic Energy in Industry Conference; 5th Hot Laboratories and Equipment Conference; and 3rd International Atomic Exposition. Over 100 firms showed nuclear components and products at the Exposition.

Nuclear power equipment division has been formed by Kieley & Mueller, Middletown, N.Y., manufacturer of automatic control devices..... New company, American Nuclear Science Corp., has been formed by management of Nuclear Biophysics Corp.; both companies are headquartered at 61 Broadway, New York, and do contract and subcontract nuclear research. Nuclear Biophysics will concentrate on biological applications of nuclear energy; American Nuclear will handle all other research and development activities. (Other BUSINESS NEWS, p. 3 this LETTER.)

Prospects of Nuclear Power and Technology, by Gerald Wendt, scheduled for next week release by D. Van Nostrand & Co., Princeton, N.J. ($6.00), is non-technical discussion of the impact of nuclear applications on society in general. Dr. Wendt's previous books are The Atomic Age Opens; Atomic Energy and the Hydrogen Bomb; Science for the World of Tomorrow; and You and the Atom. (Other BOOKS, PUBLICATIONS, p. 2 this LETTER.)

Two new high-frequency decade counter tubes (types 6909 & 6910), particularly suited for nuclear and radiation measuring equipment and other industrial controls, are being shown by Sylvania Electric Products, Inc., at the 1957 Institute of Radio Engineers Show this week in New York. Sylvania's exhibit is one of several showing electronic components finding specialized applications in nuclear equipment. (Other PRODUCTS, PROCESSES, INSTRUMENTS, p. 4 this LETTER.)

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CONTRACTS AWARDED...on nuclear projects...

Fixed price contract in amount of $8,170,060 has been awarded by U.S. Navy's Bureau of Ships to Westinghouse Electric Co., Essington, Pa., to manufacture the main steam propulsion machinery for the Navy's nuclear powered aircraft carrier. The contract includes turbines, gears, condensers and associated machinery, and was awarded following competitive negotiations. (Westinghouse, which supplied nuclear power plant for the Nautilus, first nuclear powered undersea craft, is also designing, under Navy contract, nuclear propulsion plant for a submarine capable of carrying and firing guided missiles. It will be the Navy's first guided missile submarine with nuclear power.)

Two fixed price contracts have been given General Electric Co. by the U. S. Navy's Bureau of Ships for machinery for propulsion plants of five new nuclear submarines. One contract, amount $8,333,925, is for turbine generators and associated machinery; other, amount $3,042,390, is for gears and clutches. (Ingalls Shipbuilding Corp., Pascagoula, Ala., will build two of these undersea craft, and Electric Boat Div. of General Dynamics Corp., Mare Island Naval Shipyard, and Newport News Shipbuilding & Dry Dock Co., one apiece.)

One year development contract has been given Ramapo Uranium Corp., New York, by the USAEC to furnish the Commission at $8/lb. contained uranium oxide, ore concentrates produced by the firm in a pilot plant at Warwick, N.Y. Contract limits maximum purchase to 50,000-lbs. of contained uranium oxides. Ramapo is operating the plant to see if economic separation of its ores can be made using a gravity separation process.

At the Naval Reactor Facility, national reactor testing station, Idaho Falls, Idaho, Arrington Construction Co., Inc., Idaho Falls, was awarded contract for construction of radioactive disposal system on low bid of $398,635. Work includes complete piping system, control house, underground tank cubicles, decay tanks, valve pits, leaching bed, etc. ..... Another job at this unit, construction of the expended core facility, will be done by Paul Hardemen, Inc., Los Angeles, whose low bid was $3,392,000. Special features of this job will be a 125-ton capacity overhead traveling bridge crane, lead glass viewing ports, and other special equipment. Construction details include deep water pits and cells of high density concrete. (Both these jobs were sub-contracted by Westinghouse Electric Co., prime USAEC contractor at the Naval Reactor Facility.)

Contract for the design and engineering of the Case Industrial Nuclear Center has been awarded The Austin Co., Cleveland, while ACF Industries, Inc., New York, under a contract award, will do preliminary design work on the high flux engineering test reactor and other nuclear research facilities at the Center. Both contracts were let by Case Institute of Technology, which is being assisted by six industrial firms in this project. The companies include Schenley Industries, Inc.; The Austin Co.; Cleveland Electric Illuminating Co.; Republic Steel Corp.; Standard Oil Co. of Ohio; and Thompson Products, Inc. With Case Institute, they make up what is known as the Case Industrial Center Study Group, and will use for nuclear research and development purposes the ten or more laboratories that will be available in the Center.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear topics...

Semi-Annual Report, July-Dec., 1956, USAEC. The 21st such report of the Commission. --Superintendent of Documents, Wash. 25, D. C. ($1.25).

Progress in Nuclear Energy, Series II, Vol. I. Editors: R. A. Charpie, D.J. Hughes, D. J. Littler, M. Trocheris. Covers research reactors in U. S. and abroad. 492 pages. --McGraw-Hill Book Co., Inc., New York 36. ($14.00).

New Publications Available; List No. 15. A compilation by Atomic Energy Research Establishment, Harwell, Eng. --U.K. Atomic Energy Authority, St. Giles High St., London, Eng.

Research Reports (USAEC); No. 27. Cumulative listing of 3,600 USAEC reports, with 454 items acquired since June 30, 1956. --Off. of Tech. Serv., Wash., D. C.

International Atomic Energy Agency. Analysis and review. 48 pages. --International Review Service, 15 Washington Pl., New York 3. ($2.50).

New World of the Atom, by James Stokley. A "popular" account. --Ives Washburn, Inc., 55 Fifth Ave., New York 3. ($5.50).

Industrial Role of Nuclear Energy (World Wide.), by John J. Hopkins. Approach of organization engaged in nuclear development. --Gen. Dynamics Corp., New York 22.

ATOMIC ENERGY BUSINESS NEWS...

NEW FACILITIES FOR EXPANDED NUCLEAR ACTIVITIES:- Because of its growing nuclear engineering research activities, Babcock & Wilcox Co. will erect new building at its research center (Alliance, Ohio) to provide 15,700 additional square feet of floor area. Ground will be broken for the expansion next month. (Expansion reflects belief of firm in eventual profitable nuclear operations, a condition not now existing; p. 5 this LETTER, Financial News.) ..... New plant of Tracerlab, Inc., in Waltham, Mass., occupied this month, brings together this firm's scattered operations in downtown Boston. Built at a cost of $1,800,000, the plant provides 164,000 square feet. Large integrated manufacturing area, four shielded laboratories, and eleven other major physical and chemical laboratories are some of the facilities housed in Waltham. In addition to servicing all phases of nuclear work, the company's Keleket division manufactures x-ray equipment for hospitals and other establishments. (Company hopes that its drastic "pruning" of Keleket's unprofitable items and its supervision now by a man with a record of successful x-ray equipment company operation, will turn Keleket's many years of losses to a profitable one. Four year old Tracerlab had bought 39-year old Kelley-Koett, now Keleket, when the latter was a loss company, had used its losses to fiscal advantage.)

NEW MONIES ASKED BY USAEC:- USAEC has asked Congress to authorize expenditure of $20 million to help construction of nuclear power plants under the first and second series of the Commission's power demonstration reactor program. No specific projects were disclosed. Also requested was $9 million to build a water-cooled type nuclear power reactor in Puerto Rico. The USAEC will build the reactor, while the Puerto Rico Water Resources Authority will supply the conventional facilities for an electrical generating station with a capacity of 20,000-kw. Facility will also be used for training at the new Puerto Rican Inter-American Nuclear Center. (Total funds asked for facilities were $202.45 million. Some of the projects include $2.1 million for high explosive development plant at Livermore, Calif.; $8 million for modifications of nuclear aircraft propulsion test plant at Idaho Falls testing station; $5 million for Project Sherwood, the study of thermonuclear power; $6 million for special weapons components plant; $10 million for fuels technology center at Argonne National Laboratory, to develop methods of using plutonium as reactor fuel; $4 million for radioactive waste calcination plant, and $3.7 million for radioactive waste storage tanks, at Idaho Falls.)

JOINT NUCLEAR COMPANY ESTABLISHED:- Formal filing of Sylvania-Corning Nuclear Corp. as a Delaware corporation is initial step in the joint activities of Sylvania Electric and Corning Glass in nuclear field. Company has directors from both organizations, with Lee L. Davenport to be president and Walter E. Kingston to be executive vice president. Headquarters will be at Bayside, L.I., facilities now headquarters of Sylvania's atomic energy division. Work will be on reactor fuels, materials and components; and methods of separation and recovery of spent fuels.

NUCLEAR INSTRUMENT FIRMS MERGE:- Two English nuclear instrument companies, Isotope Developments, Ltd., London, and R. A. Stephen & Co., Ltd., Mitcham, have merged. R. A. Stephen manufacture quartz fibre pocket dosimeters, while Isotope Developments produce thickness gauges, radiation monitors, and reactor and laboratory instruments. (Associated Electrical Industries, The Distillers Co., Prudential Assurance, and other firms hold interests in Isotope Developments, having assisted in its original formation.)

NUCLEAR ENERGY POWER PLANTS TO BE EXPANDED IN BRITAIN:- A new nuclear energy power program adopted by the British Government has as a goal the production by 1965 of between 5,000 and 6,000 megawatts of electrical energy. Announced in London last fortnight by Lord Mills, Minister of Power, 20 nuclear power plants, to cost £919,000,000 ($2,573,200,000), will provide three times the electrical capacity of Britain's original nuclear power program which was set out in February 1955. Financing will be by the English and Scottish electricity authorities, and by Government loans. Additional cost of the nuclear power plants, as compared with conventional ones, is estimated at about £750,000,000 ($2,100,000,000.) Lord Mills emphasized that nuclear equipment export business would not be disrupted by this increased domestic demand.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- New lightweight scintillation counter, which may be air-or carborne, is said to have sensitivity equivalent to two million counts per minute in a one mr/hr field of radiation. Unit is self-contained, being battery operated, and is supplied with 2"xl-1/4" sodium iodide, thallium-activated crystal optically coupled to a 2" diameter specially designed photomultiplier tube. --Universal Atomics Div., Universal Transistor Products Corp., New York 17, N.Y.

MANUFACTURERS' SHIPMENTS, SALES AND ORDERS:- New, specially designed 2000-lb. draw bench has been shipped to Hanford Works, Richland, Wash., by Fenn Manufacturing Co.'s nuclear machinery division. Designed specifically for metallurgical laboratory work, the bench has slow drawing speed of 6" to 60" per minute, with return speed of 50 FPM, and scissor-type positive release jaws mounted on the cylinder instead of the piston.

Aerojet-General Nucleonics, San Ramon, Calif., division of General Tire and Rubber, has orders for 26 of its 100 milliwatt nuclear research reactors, Dan Kimball, Aerojet-General president said recently at Joint Congressional Committee on Atomic Energy hearing in Washington. (The firm sells these reactors for $95,000 each, and has applied to the USAEC for licenses to construct 12 of them.) Mr. Kimball said the company feels there is a market for 700 in training fields; he predicted small reactors will eventually be as common in hospitals as x-rays machines are today.

High Voltage Engineering Corp., Burlington, Mass., has sold a 3-million electron-volt Van de Graaff particle accelerator to the Ontario Cancer Institute, Toronto. The institute expects to use the machine for fundamental biological research in cancer, and in investigation of neutron therapy.

PROCESSES:- Conditions have been set up under which the USAEC will contract with operators of private nuclear reactors to provide for chemical processing of spent fuel elements taken from their nuclear reactors. Features of such contracts will include: 1) The USAEC's daily processing rate will be based on costs associated with a plant costing $20,750,000 to construct and with annual operating costs, including amortization, of $4,592,000, and which is capable of handling daily 1-ton of natural or slightly enriched uranium, with a 300-day annual operation. 2) The USAEC's processing system would yield purified nitrate salts of uranium and plutonium. Additional charges will be made for converting these products to uranium hexafluoride and plutonium metal. (Further details such contracts: Federal Register, Mar. 8, 1957.)

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- New USAEC regulation (10 CFR 60) provides for Commission and Interior Department's Bureau of Land Management to cooperate in issuing uranium prospecting permits and mining leases on Government lands, where other Federal agencies lack authority. Features of regulation: 1) Maximum area: 1,920-acres. 2) Permit period: two years, and two year renewal on expiration. 3) Mining lease: annual rental is $1.50/acre, with Government royalty of 10% of the gross. Leases to run for 5-years, with 3-year extension.

CANADA:- In the Beaverlodge area, N. Saskatchewan, first units of Lorado Uranium Mines' custom milling uranium plant are expected to go into operation this month. Mill will initially handle 500 tons daily, treating both Lorado's own ores and ores from other mines in the area. Cayzor Athabaska, St. Michael Uranium, Lake Cinch, National Exploration, and Back Bay Uranium, have contracts to supply Lorado. (Lorado holds contract to sell Eldorado Mining & Refining $64,480,000 worth of uranium precipitates.)

FRANCE:- Official figures now place uranium ore reserves of Metropolitan France at between 50,000 and 100,000 tons. (France also has reserves in Madagascar of 1,000 tons of uranothorianite.) Present French prices quoted for uranium concentrates are Frs. 12,000 (approximately $US33.60) per kilogram.

AFRICA:- New office will be opened next month at Dodoma, Tanganyika, by U. K. Atomic Energy Authority, to give technical advice to uranium prospectors in East Africa. Similar office has been set up in Salisbury, to service Federation of Rhodesia and Nyasaland. (This is part of Britain's commonwealth-wide plan to stimulate search for radioactive minerals.)

AUSTRALIA:- Work has started on building sulfuric acid plant for Mary Kathleen Uranium, Ltd., at its field in N. Queensland for uranium ore refining process.

ATOMIC ENERGY FINANCIAL NEWS...

ATOMIC ENERGY DIVISION NOT PROFITABLE, FIRM REPORTS:- Babcock & Wilcox Co. with sales of $281,485,168 in 1956, and earnings of $2.74 a common share, is not operating its nuclear energy division on a profitable basis, Alfred Iddles, president, told his stockholders in the company's annual report. The firm had a backlog on Dec. 31, 1956, of $427,228,000, a record high, Mr. Iddles stated. He said that the company will continue to push its nuclear energy activities, but that it could not be predicted "when the activities of the nuclear energy division will become profitable".

CONTROLLING INTEREST IN URANIUM MINE ACQUIRED BY INVESTMENT TRUST:- Atlas Corp.'s wholly-owned subsidiary, Hidden Splendor Mining Co., has acquired controlling interest in Rio de Oro Uranium Mines, Inc., Albuquerque, N. M., through purchase of more than 40% of outstanding stock at between 45¢ and 50¢ per share. (Rio de Oro has mined and sold about 20,000-tons of ore from its two ore bodies in the Ambrosia Lake area north of Grants, N. M. With Homestake Mining Co., Rio de Oro is participating in construction of a uranium mill near Grants, which is being built by Homestake-New Mexico Partners. Rio de Oro, newest addition to the Atlas portfolio, continues to make uranium properties largest single holding of Atlas.)

FIRMS REPORT PROGRESS IN NUCLEAR DIVISIONS:- Universal Winding Co., Providence, which operates Patterson, Moos, Jamaica, N.Y., as a nuclear research subsidiary, had a higher net income for the six months ending Dec. 31, 1956 than in the corresponding period of 1955, Robert Leeson, president, told his stockholders in the firm's mid-year report. Mr. Leeson noted that Patterson, Moos, now primarily doing Government research, has increased its backlog of research contracts and also is working on product development..... Cuno Engineering Corp., Meriden, Conn., specializing in the field of fluid filtration, had sales of $6,297,235 in 1956 with earnings of $1.32 a share (up from the previous year's net of $1.04 a share) Murray McConnel, president, has reported. Mr. McConnel attributed the improvement in net income to excellent results from new products. He said that notable progress had been made with modified filter units for the USAEC known as the Super Auto-Klean. Applications will be in nuclear reactor under construction by Westinghouse Electric Corp., for the Shippingport, Pa., site.

STOCK PURCHASE RIGHTS GIVEN SHAREHOLDERS:- Anaconda Co., metal mining, smelting, refining, and fabricating company, and which also claims to be the largest U.S. producer of uranium ores and concentrates, recently gave stockholders rights to buy one additional share of stock at $50 for each five held; shares offered were 1.7 million. The firm plans to use the $85 million it raised for its $350 million program for plant expansion and improvement. (Anaconda's processing plant at Grants, N.M., treats 3,000-tons of ore daily. It estimates its owned uranium ore reserves at 15-million tons of 0.16% oxide content. The firm states that it has reduced its costs to the point where it will soon be able to make a second price reduction on concentrates.)

MUTUAL FUND INCREASES SHARES OUTSTANDING:- Although Atomic Development Mutual Fund, Inc., Washington, took back 109,983 more shares than it sold during 1956, Mar. 1, 1957 saw gains with 2,819,149 shares outstanding compared with 2,805,782 on Dec. 31, 1956.

ATOMIC ENERGY PATENT DIGEST...latest grants...

Manufacture of solid plates of titanium and zirconium. U. S. Pat. No. 2,785,066 issued Mar. 12, 1957; assigned to Chicago Dev. Corp., Riverdale, Md. (Inventor: R. S. Dean.)

Ion generator using radioactive material. U. S. Pat. No. 2,785,312 issued Mar. 12, 1957; assigned to Ionaire, Inc., San Francisco, Calif. (Inventor: T. L. Martin, Jr.)

Apparatus for irradiation purposes. U. S. Pat. No. 2,785,313 issued Mar. 12, 1957; assigned to High Voltage Eng. Corp., Cambridge, Mass. (Inventor: J. G. Trump.)

Radioactivity earth exploration. U. S. Pat. No. 2,785,314 issued Mar. 12, 1957; assigned to The Texas Co., New York, N.Y. (Inventor: J. H. Grahame.)

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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